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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/781,978	02/14/2001	Samuel D. Harkness IV	146712001400	9538

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EXAMINER	
FLETCHER III, WILLIAM P	
ART UNIT	**PAPER NUMBER**
1762	

DATE MAILED: 08/22/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/781,978	HARKNESS ET AL.	
	Examiner	Art Unit	
	William P. Fletcher III	1762	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *01 June 2005*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-20* is/are pending in the application.

4a) Of the above claim(s) *1-9 and 20* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *10-19* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *14 February 2001* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☒ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

1. In view of the Appeal Brief filed on 1 June 2005, PROSECUTION IS HEREBY REOPENED. New grounds of rejection are set forth below.

To avoid abandonment of the application, appellant must exercise one of the following two options:

(1) file a reply under 37 CFR 1.111 (if this Office action is non-final) or a reply under 37 CFR 1.113 (if this Office action is final); or,

(2) request reinstatement of the appeal.

If reinstatement of the appeal is requested, such request must be accompanied by a supplemental appeal brief, but no new amendments, affidavits (37 CFR 1.130, 1.131 or 1.132) or other evidence are permitted. See 37 CFR 1.193(b)(2).

Response to Arguments

2. Appellant's arguments, see the Appeal Brief, filed 1 June 2005, with respect to the rejections of claim(s) 10-19 under 35 U.S.C. § 103(a), have been fully considered and are persuasive. Lin does not teach magnetic recoding media. Rather, this reference teaches a spin valve sensor which is for *reading*, not recording, magnetic information. Therefore, the rejections have been withdrawn. However, upon further consideration, new grounds of rejection is made in view of Brady et al. (US 5,571,591 A) and Chen et al. (US 6,403,241 B1).

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. **Claim 10 is rejected under 35 U.S.C. 102(b) as being anticipated by Brady et al. (US 5,571,591 A).**

With respect to claim 10, this reference teaches a process for manufacturing a magnetic recording medium in which a magnetic recording layer is deposited on a substrate, a cap layer is deposited atop the magnetic recording layer, and the cap layer is annealed *in situ* at a temperature of at least 200°C to thereby manufacture the magnetic recording medium (3:40-4:66).

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

6. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

7. **Claims 12-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Brady et al. (US 5,571,591 A).**

The teaching of Brady is detailed above.

With respect to claim 12, Brady does not explicitly state that a protective layer is deposited on the cap layer after annealing. It is the examiner's position that the deposition of a protective layer atop a cap layer is common and conventional in the art of manufacturing magnetic recording media and consequently would have been obvious.

With respect to claim 13, as noted above, Brady teaches annealing at temperatures of at least 200°C. Several specific temperatures above 200°C are taught by Brady, including 400°C and 600°C (6:9-28), but the reference does not explicitly state that the annealing is carried out at from between bout 250°C to about 350°C, as claimed. Nevertheless, Brady's range encompasses the claimed range. In the case where a claimed range lies inside a range disclosed by the prior art, a *prima facie* case of obviousness exists. MPEP § 2144.05(I).

With respect to claim 14, Brady does not explicitly state that the annealing is carried out for less than about 30 seconds. Nevertheless, Brady teaches that anneal time is a result-effective variable effecting the number of layers and/or thickness of the magnetic recording medium (5:1-12). In other words, more/thicker layers require a longer anneal time while fewer/thinner layers require a shorter anneal time. Absent clear and convincing evidence of unexpected results demonstrating the criticality of the claimed anneal times, it would have been obvious to one of ordinary skill in the art to modify the process of Brady so as to optimize the anneal time by routine experimentation. MPEP § 2144.05(II).

With respect to claim 15, as noted above, Brady teaches annealing at temperatures above 200°C (MPEP § 2144.05(I)) and it would have been obvious it would have been obvious to one of ordinary skill in the art to modify the process of Brady so as to optimize the anneal time by routine experimentation (MPEP § 2144.05(II)).

With respect to claim 16, Brady does not explicitly state that the cap layer has a thickness of from about 0.5 nm to about 5 nm. Nevertheless, as noted above, Brady teaches that layer thickness is a result-effective variable effecting the number of layers in the magnetic recording medium, the anneal time and, consequently, the overall processing time (5:1-12). Absent clear and convincing evidence of unexpected results demonstrating the criticality of the claimed anneal times, it would have been obvious to one of ordinary skill in the art to modify the process of Brady so as to optimize the layer thickness by routine experimentation. MPEP § 2144.05(II).

8. **Claims 11 and 17-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Brady et al. (US 5,571,591 A) as applied to claim 10 above, and further in view of Chen et al. (US 6,403,241 B1).**

The teaching of Brady is detailed above.

With respect to claim 11, Brady teaches that the magnetic recording layer may be an alloy of cobalt (3:47-49), but does not explicitly state that the alloy comprises CoCrPt. Chen teaches forming a magnetic recording layer comprising CoCrPt (abstract, for example). Consequently, it would have been obvious to one of ordinary skill in the art to modify the process of Brady so as to utilize, as the Co-alloy magnetic recording layer, CoCrPt, which Chen teaches is suitable for use as such. One of ordinary skill in the art would have been motivated to do so by the desire and expectation of successfully depositing a magnetic recording layer.

With respect to claim 17, while Brady teaches a multilayer magnetic recording medium, this reference does not explicitly state the multilayer structure recited in this claim. Again, Chen teaches such an arrangement of layers in a magnetic recording medium (abstract and 4:1-6:57). Chen teaches that such an arrangement provides high H_r and SMNR (3:35-43). Consequently, it

would have been obvious to one of ordinary skill in the art to modify the process of Brady so as to utilize, as the sub-magnetic recording layer structure, the structure of Chen. One of ordinary skill in the art would have been motivated to do so by the desire and expectation of successfully providing a support to the magnetic-recording medium as well as a magnetic recording medium having high H_r and SMNR.

With respect to claim 18, as noted above, Brady teaches that the magnetic recording layer may be an alloy of Co.

With respect to claim 19, as noted in relation to claim 11 above, it would have been obvious to one of ordinary skill in the art to provide a magnetic recoding layer of CoCrPt. Neither reference teaches that this layer has a thickness from about 100 nm to about 400 nm. As explained above, Brady teaches that layer thickness is a result-effective variable effecting the number of layers in the magnetic recording medium, the anneal time and, consequently, the overall processing time (5:1-12). Absent clear and convincing evidence of unexpected results demonstrating the criticality of the claimed anneal times, it would have been obvious to one of ordinary skill in the art to modify the process of Brady so as to optimize the layer thickness by routine experimentation. MPEP § 2144.05(II).

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to William P. Fletcher III whose telephone number is (571) 272-1419. The examiner can normally be reached on Monday through Friday, 9 AM to 5 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Timothy H. Meeks can be reached on (571) 272-1423. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

WPF 8/15/2005

William Phillip Fletcher III
Patent Examiner, USPTO
Art Unit 1762

MICHAEL CLEVELAND
PRIMARY EXAMINER